IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Rene Jean Zimmer et al.	)	Confirmation No. 3717
For: PATTERN FOR A TIRE SURFACE	)	Docket No. DN2001205X01 Art Unit: 1733
Serial No.: 10/024,869	)	Examiner: Steven D. Maki
Filed: December 19, 2001	)	

Mail Stop Appeal Brief – Patents
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCE

APPELLANTS' BRIEF

Dear Sir:

Appellants, by virtue of their Notice of Appeal filed May 9 2006, hereby file their Appeal Brief in response to the Final Rejection of all pending claims in the above-identified application. The Commissioner is hereby authorized to charge the fee of Five Hundred Dollars and 00/100 ($500.00) to Appellants' Deposit Account No. 07-1725. The Commissioner is also authorized to charge any additional filing fees which may be required or to refund any overpayment to Account No. 07-1725. Triplicate copies of this letter are enclosed.

Real Party in Interest

By virtue of an Assignment by the named inventors, the real party in interest of the present application is The Goodyear Tire & Rubber Company. The Assignment has not been recorded in the U.S. Patent and Trademark Office.

Related Appeals and Interferences

There are no related appeals or interferences.

Status of the Claims

Claims 1 through 18 stand rejected and are subject to this Appeal. A copy of claims 1 through 18 appear in the Claims Appendix of this Brief.

Status of Amendments

An Amendment after Final was filed March 29, 2006. Per the Examiner's Advisory Action, it does not place the application in consideration for allowance.

Summary of the Claimed Subject Matter

The subject invention as claimed (independent claim 1) is directed to a tire having a plurality of radially outer rubber components. The components define a radially outer surface (S1) of the tire and are exposed to fluids having a relative displacement with respect to the rotating tire. The tire comprises at least one radially outer component having projections, the projections being defined by first sides (2) and second sides (2') of unequal length. The first sides (2) have the greater length, and delimiting with the second sides (2') an angle α ranging from 5° to 60° and forming at their intersection an apex (P), which protrudes by a height (h) from the radially outer surface (S1) from which said first and second sides originate. The second side (2') forms with the outer surface (S1) an undercut extending beneath the apex (P), and the height (h) ranging from 0.2 to 100 micrometers. In more than 75% of the projections, any plane tangent to the first side (2) of the projection cutting the radially outer surface (S1) at an acute angle.

The invention in another aspect as claimed (independent claim 16) is directed to a mold for manufacturing a rubber tire. The mold comprises surfaces (S1, S2, S3) to form a tire having at least one radially outer component having projections. The projections are defined by first sides (2) and second sides (2') of unequal length, the first sides (2) having the greater length. The sides delimit therebetween an angle α ranging from 5° to 60° and forming at their intersection an apex (P), which protrudes by a height (h) from the radially outer surface (S1) from which said first and second sides originate. The second side (2') forms with the outer surface (S1) an undercut extending beneath the apex (P), and the height (h) ranges from 1 to 100 micrometers. In more than 75% of the projections, any plane tangent to the first side (2) of the projection cuts the radially outer surface (S1) at an acute angle.

The invention as claimed (independent claim 17) is further directed in another aspect to a process of making a rubber tire. The method includes the steps: providing a tape with projections protruding from the surface of the tape, the projections being defined by first sides (2) and second sides (2') of unequal length, the first sides (2) having the greater length;

delimiting therebetween an angle α ranging from 5° to 60° and forming at their intersection an apex (P), which protrudes by a height (h) from a radially outer surface (S1) of the tape from which said first and second sides originate; the second side (2') forming with the outer surface (S1) an undercut extending beneath the apex (P), and whereby the height (h) ranges from 0.2 to 100 micrometers; and in more than 75% of the projections, any plane tangent to the first side (2) of the projection cuts the radially outer surface of the tape at an acute angle; adhering the tape to a vulcanized radially outer rubber component of a rubber tire.

Issues

I. Are claims 1, 2, 4-9, 14-15 and 18 unpatentable under 35 U.S.C. 103(a) over Drews 302 (US 4284302) in view of Fronek et al (US 5848769) and optionally Drews 290 (US 4180290).

II. Is claim 3 unpatentable under 35 U.S.C. 103(a) over Drews 302 in view of Fronek et al. and optionally Drews 290 as applied above and further in view of Rethorst (US 3523661).

III. Are claims 10-13, 16, and 18 unpatentable under 35 U.S.C. 103(a) in view of Fronek et al and optionally Drews 290 as applied above and further in view of Heinen (GB 2363100 or US 6415835) or Ohsawa (US 2001/0032691).

IV. Are claims 15, 16 and 18 unpatentable under 35 U.S.C. 103(a) over Drews 302 in view of Fronek et al and optionally Drews 290 in view of Kemp et al (US 6253815).

V. Is claim 17 unpatentable under 35 U.S.C. 103(a) over Drews 302 in view of Fronek et al and optionally Drews 290 in further view of Japan 219(JP 6-40219) or Baker (US 5603796).

VI. Are claims 1-16 and 18 unpatentable under 35 U.S.C. 103(a) over Ohsawa (US2001/0032691) in view of at least one of Lobert et al (US 4750693), Drews 302 and Drews 290 and optionally in view of Japan '135 (JP 11-59135).

ARGUMENTS

I. Claims 1, 2, 4-9, 14-15 and 18 are not unpatentable under 35 U.S.C. 103(a) over Drews 302 (US 4284302) in view of Fronek et al (US 5848769) and optionally Drews 290 (US 4180290).

The Examiner in the Advisory Action dated April 27, 2006 has indicated:

> "Claims 1-18 would be allowable if (1) claims 1, 16, and 17 are amended to include the subject matter of figure 3 (e.g. claim 1 line 8 is amended by inserting –having a convex surface extending extending from and – after "the second side (2')"), (2) dependent claim 7 is appropriately amended in view of the amendment to claim 1 and (3) literal antecedent basis is provided by inserting –convex—before "sides 32 and 32'" at line 3 of paragraph 37 on page 6 of the specification."

The Examiner as a basis for holding claims 1-18 allowable as amended above states as follows:

> "Although disclosing concave sides (figure 4 of Drews 302) or straight sides (figure 4b of Lobert et al), the applied prior art fails to suggest "the second side (2)' having a convex surface extending from and forming with the outer surface (S1) an undercut extending beneath the apex (P)" (emphasis added) in combination with the remaining limitations of claim 1."

The indication of allowability of claims 1-18 by the Examiner if amended above, it is noted by Applicants, was made without any stated need by the Examiner for Applicants to submit evidence of unexpected results. Applicants have consistently argued in the prosecution of the subject application that "unexpected results" is inherent in the advantages attained by the claimed invention over the cited art and that no special showing of "unexpected results" is required statutorily or is necessary to distinguish the claimed invention over the cited art. As claims 1-18 if amended as above would be patentable over the cited art without such a showing, so claims 1-18 in the unamended form now the subject of appeal are patentable over the cited art without such a showing. Applicants accordingly traverse the Examiner's arguments that a showing of "unexpected results" renders claims 1-18 unpatentable in their existing form now on appeal.

Moreover, Applicants' position, stated succinctly, is that claims 1-18 are allowable over the cited art for the same reasons as the Examiner acknowledges claims 1-18 would be patentable over the cited art if amended as above. Namely, claims 1-18 (see independent claims 1, 16, and 17) combine a novel shaped first projection side with an undercut formed by intersecting first and second sides that extends beneath an apex (P). Specifically, the independent claims require a first side (2) in which, in more than 75% of the projections, *any*

plane (emphasis added) tangent to the first side (2) of the projection cuts the radially outer surface (S1) at an acute angle and the second side (2') forming with the outer surface (S1) an undercut extending beneath the apex (P). The Examiner's rationale that a (convex) configuration of second side (2') in combination with a projection undercut formed by sides (2) and (2') is patentable over the cited art, Applicants submit, is equally applicable to the claims in their existing form now on appeal. It is incongruous to hold that a (convex) configuration of a second side (2') in combination with a projection undercut formed by sides (2) and (2') would not be obvious in view of the cited art but that a uniquely configured first side (2) (i.e. a projection in which any plane tangent to the first side (2) cuts the radially outer surface (S1) at an acute angle) in combination with a projection undercut formed by sides (2) and (2') is obvious over the cited art. Applicants submit that the same rationale must logically conclude patentability in both cases. The art cited simply does not teach or suggest individually or in combination a projection *any plane* tangent to the first side (2) of the projection cuts the radially outer surface (S1) at an acute angle and the second side (2') forming with the outer surface (S1) an undercut extending beneath the apex (P).

The Drews 302 reference, as the Examiner notes, teaches concavely-configured first and second sides. Applicants submit that the first projection sides of Drews 302 do not meet the claim limitations because at least one line tangent to a first side of a Drews 302 projection will not cut the radially outer surface of Drews at an acute angle. The Drews 302 projections, accordingly, do not meet the limitations of the claims as to the relationship of projection first side (2) and surface S1.

The specific deficiencies of the cited art, as previously set forth by Applicants, are as follows.

In general, the Examiner has failed to produce prior art that teaches the claimed tire surface projections or teachings within the four corners of any cited reference that would instruct one skilled in the art toward modifications necessary to achieve the subject invention. As such, the Examiner's selective and unsubstantiated combination of isolated features from a plurality of disparate, non-analogous art must be considered insufficient under 35 U.S.C. 103 to render the invention unpatentable. As set forth in the claims, the subject projections are specifically recited as including an undercut formed by sides of unequal length forming an apex that protrudes by a height (h) from a radially outer surface from which the first and second sides originate. The problems that the claimed invention is intended to reduce or eliminate are: enhanced self-cleaning; improved optical appearance; improved water

repellence that reduces the risk of aquaplaning; and allow for color differentiation. For the Examiner's rejection to be appropriate, the combination of references must teach and show each claimed element and there must be some teaching or suggestion within the references themselves that would instruct one skilled in the art *faced with the problems listed above* (emphasis added) to make the proposed modification and combination of selected elements. Applicants submit the conclusions of the Examiner are not supported by a fair teaching of the references. Moreover, the references do not address the same problems as those addressed by the instant invention and it would not, therefore, be obvious for one skilled in the art to look to the cited art for a solution.

This rejection is respectfully traversed for the following reasons. The Drews reference is no more relevant than the previously cited art that relates to the use of flutes for the purpose of reducing drag on a vehicle. There is no teaching or suggestion in Drews as to the use of acute projections on a radially outer tire surface (S1) with projections located on a radially outer tire component (claim 1). The Examiner has not identified acute projections located on *radially outer* (emphasis added) Drews tire surfaces and further has not identified acute projections on radially outer Drews tire components. Nor does Drews teach a projection on a radially outer tire component that is dimensioned and configured as defined in the claims. Specifically, Drews teaches fluted projections that are in the range of about 1/16 to 1/8 in., which may be significantly smaller or "microscopic". Flutes of this magnitude are decidedly different from the protrusion dimensions as set forth in the subject claim. The general language of Drews that the flutes may be smaller or "microscopic" must be taken in context of the purpose of the Drews configuration, that is, to streamline the external surfaces of an automobile for the purpose of reducing drag. There is no teaching in Drews that would instruct one of skill in the art to reduce flutes of about 1/16 to 1/8 inches down to .2 to 100 micrometers for a purpose unrelated to the problems that the Drews disclosure is intended to address. It is significant to note that Drews specifically states that "size is not critical but will normally be as small as practical to produce the desired interaction". This desired interaction is "developing increased propulsions efficiency by reducing opposing forces acting on the vehicle". (See Drews col.1, lines 5-10). Thus the range of sizes taught by Drews for its intended purpose of reducing vehicle drag is limited by that objective. For the Examiner to extrapolate the teachings of Drews in which the preferred flute size is on the order of 1/16 to 1/8 inches to equate with the .2 to 100 micrometers recited in the claims is not properly founded and based solely on a re-constructing of Drews based solely on hindsight.

In contrast, as stated in the specification and as achieved by structure defined in the claims, the projections of the invention are intended to address the problem of providing channels for water evacuation from radially outward tire surfaces that do not create structural traps for dirt and debris. Drews flutes at 1/16 to 1/8 inch would not be functional to meeting the dual objectives of providing dirt resistance and water evacuation on radially outward tire tread projections and surfaces. The sizing of the Drews channels would create dirt traps for collecting debris.

Moreover, it is not clear from Drews as to what the lower limit of the Drews flutes can be so as to be "practical to produce the desired interaction". Drews would not enable one skilled in the art to practice the claimed invention for there is neither a clear instruction in Drews as to the definition of "size", nor an indication of what that size limit can be so as to produce the "desired interaction". Drews does not even define the term "size" and it is unclear as to whether Drews is referencing length, width, height of the projections. In contrast, the claimed invention recites the height at the apex in specifying a range of heights that is neither taught nor suggested by the Drews reference.

It is further unclear from Drews as to what is "microscopic". The lower limit inferred by Drews could be above Applicants' claimed range. Drews further states that the size of its projections is limited by two conditions: small as possible; but large enough to achieve a "sufficient efficiency". The Drews specification is of little or no use as instruction to one skilled in the art for neither limit is sufficiently specific to be used as a design criteria. At what size would Drews "efficiency" begin? Such ambiguous and nonspecific limitations cannot be used by one of ordinary skill in achieving the subject claimed invention. Drews, as explained above, is even less clear in that it does not teach how to measure the "size"; how to measure "efficiency"; it does not define "sufficient efficiency", or define "microscopic". The invention, on the other hand, as claimed, discloses a specific range for a specific application. Applicants therefore maintain that Drews is deficient in teaching projections of the specified and claimed configuration and height.

The present invention discloses a radially outward tire surface, specifically claimed radially outward tire component having projections. The projections on the radially outward tire components have a configuration that provides dirt-repellence and water-repellence and is self-cleaning. In addition, the projections and their orientation provide a visual differentiation in the surface. In order to be effective in meeting all three of the objectives, the invention structure needs to be smaller than the size of dirt particles. See para. 7-9 and 15 of the specification. Drews, however, teaches a projection size that is functionally incapable

of meeting any of the design objectives. Drews serves to reduce air resistance. That is the only stated objective of the Drews configuration and the projections disclosed by Drews would not be of a size to functionally meet the objectives of the invention. Drews, accordingly, is an insufficient reference to provide a basis for rejecting the claimed invention.

In the outstanding office action, the Examiner relies on flutes 9 in FIG. 4 as showing the undercut projections claimed. The Examiner overlooks limitations in the claims. Claims 1 and 16 recite the second side of each projection forming an undercut with the outer surface extending beneath the apex (P). The first and second sides of the projections as further claimed *originate* at surface (S1). Hence, the second claimed side forms from its place of origin (S1) to the apex (P) an undercut. Drews in FIG. 4 of the '302 reference as well as 4 of the '290 reference teaches a concave flute side in which at least a portion of the second side to its surface of origin does not form an undercut extending beneath the apex (P). Such portions of the Drew flutes extend beyond an apex formed between a longer and shorter flute side. Clearly second side portions in Drews extending beyond the apex of the flute to a surface of origin equivalent to surface S1 of the claimed invention do not form an undercut that lies beneath the apex as required in independent claims 1 and 16.

Additionally, the Examiner has not specified in the Drews references what is deemed to be the surface (S1 in the claims) from which the sides of the Drews flute originate. Reference is made in the following to FIG. 4 of Drews '302, the same flute configuration likewise shown in FIG. 4 of Drews '290. The Drews flutes are wave shaped with both a first side and a second side of each flute having a *concave configuration*. The first side (2) of each flute extends to an apex (A) and intersects a second side (4). The first side (2) of each Drews flute originates from the terminal end (P) along a concave radius with a terminal end of second side (4) of an adjacent flute. A plane T1 tangent at the terminal point (P) of a first side (2) will not cut a radially outer surface (S1) at an acute angle. Should the Examiner consider the series of points P as defining a surface, a position that is considered untenable by Applicants, tangent line T1 would be lie within that surface and not intersect it at an acute angle. Should the Examiner consider some other surface as equivalent to claimed surface S1, clearly flute surfaces 2, 4, of Drews would not intersect such a surface at all, much less at the claimed acute angle of claims 1, 16. Thus, Drews fails to meet the limitations of claims 1, 16 as to the formation of an undercut and fails to meet the limitations as to the intersection of a *any plane* (emphasis) tangent to the first side of a projection and a radially outer surface at an acute angle. The Examiner concedes that Drews 302 does not recite the height limitations in claims 1 and 16, representing yet another limitation of the claims not represented in the

Drews art. For reasons above, Applicants have explained why the Examiner's proposed dimensional modifications of the Drews flutes go against the Drews teachings, purposes, and would not be obvious to one skilled in the art.

As to the rejected dependent claims 2, 4-9, 14-15, and 18, the Examiner's conclusions that the subject matter therein would be obvious by Drews 302/Fronek are uncorroborated, founded on an improper reading of Drews, and solely based on hindsight. The addition of Fronek to Drews does not overcome the deficiencies of the primary reference. Nor is there any teaching in either reference that would instruct one of skill in the art to make the selective combination of features that the Examiner is proposing to be obvious. Fronek lacks projections that meet the limitations of the claims as to being undercut and within a specific height range. Drews also fails to meet the limitations of the claims for the reasons discussed above. In addition, as the Examiner notes, Fronek is intended to be used for the sole objective of reducing drag in an article. The non-undercut Fronek projections would not effectively meet the objectives of the invention as to dirt and water repellence. The Examiner is incorrect in concluding that the present invention does not achieve unexpected results in view of the applied art for neither reference individually or in combination can accomplish the stated objectives of the invention. Moreover, as explained above, the Examiner is inconsistent in concluding the present invention as claimed does not achieve unexpected results when the invention, if amended as set forth in the Advisory Action, does achieve unexpected results.

At to the dependent claims, the combination of Drews and Fronek is insufficient basis for rejection of the claims for at least the reasons set forth above. In claim 2, the acute angle formed by any plane tangent to the first side (2) and an outer surface S1 must be between 13 and 55 degrees. As shown in the attached reproduction from Drews '302, tangent line T1 does not intersect a surface within the range specified. Moreover, there is not instruction in Drews or Fronek for a plane cutting the radially outer surface at an angle tangent to the first side of the projection at a height not exceeding 75% (claim 4 depending from claims 3 and 1). Nor can Applicants agree that the limitations in claim 5 are met in FIG. 5 of Drews. Compare FIG. 5 of Drews with the claimed angle of the invention as shown in FIG. 7. Rows of neighboring projections in Drews' FIG. 5 are oriented such that their longitudinal axis are parallel, not at the claimed angle of claim 5.

Nor do the references teach projections having the structure of claim 1 wherein the projections are within a distance of 0 to 100 micrometers from each other (claim 6).

II. Claim 3 is not unpatentable under 35 U.S.C. 103(a) over Drews 302 in view of Fronek et al. and optionally Drews 290 as applied above and further in view of Rethorst (US 3523661).

This rejection is respectfully traversed for the reasons set forth above regarding the combination of Drews and Fronek and for the following additional reasons. There is no teaching in either Drews or Fronek for a rounding of an apex as set forth in the claims. Rethorst teaches an asymmetric diffuser for reducing drag in an aircraft wing. One of ordinary skill in the art would not be led toward the combination of disparate references that the Examiner is proposing to be obvious. No combination of the references would be possible save by the improper modification and use of hindsight using the invention disclosure. The Examiner has pointed to no teaching in any of the references that would encourage one skilled in the art to look to projections applied to the problem of drag reduction for instruction in tire construction where dirt and water repellence, and visual distinction, are competing design objectives.

III. Claims 10-13, 16, and 18 are not unpatentable under 35 U.S.C. 103(a) in view of Fronek et al and optionally Drews 290 as applied above and further in view of Heinen (GB 2363100 or US 6415835) or Ohsawa (US 2001/0032691).

The rejection is respectfully traversed for the above reasons as to the combination of Drews, Fronek and for the following additional reasons.

The cited collective art simply fails to teach or suggest a projection falling within the parameters of the claimed invention. Ohsawa discloses an angle alpha between a long side A of a projection and a short side B that is substantially ninety degrees. The Examiner in a previous office action to the parent application has acknowledged that Ohsawa does not recite a projection falling within the parameters of the claimed invention. Applicants do not dispute that Ohsawa shows asymmetrical projections but, rather than rendering the invention obvious, the fact that the asymmetrical projections of Ohsawa lie outside the claimed parameters of the invention undercut channels is strong evidence of non-obviousness. The enhanced water and dispersement achieved by the present invention is not achieved by Ohsawa and there is no teaching or suggestion in the reference as to the modification proposed by the Examiner.

Likewise, Heinen teaches in FIG. 4 an asymmetrical projection but, like Ohsawa, the Heinen angle alpha between longer side A and shorter side B does not lie within the undercut claimed parameters. Heinen, in short, is cumulative to Ohsawa and both references, whether

considered singularly, or in combination, fail to teach or suggest an undercut projection having an angle of inclination falling within the claimed invention specifications. The combination proposed in the rejection of claims 10-13 is therefore deficient in teaching the claimed invention given that the references each have structures inconsistent with the claimed invention. There is no instruction in Drews, Fronek, Heinen or Ohsawa that could possible lead one in skilled in the art to combine certain isolated features but not combine other features. That the references are intended for different applications and objectives (drag reduction versus dirt and water repellence) makes the Examiner's proposed combination even more improbable and remote.

As to claims 16 and 18, a mold for creating a tire having projections in which the angle between projection surfaces range from five to sixty degrees is not present in any teachings of Ohsawa. Severely sloping projections having a height that is within a 1 to 100 micrometer range is not taught by the reference. The conclusion that it would be obvious to modify the reference in order to achieve the invention is, accordingly, considered by Applicants to be pure hindsight and an improper basis for rejection of the pending claims.

Applicants reiterate that Ohsawa has a pitch less than two times the depth but does not have an undercut shorter second side in each projection such that the angle between the longer and shorter sides of each projection falls within the prescribed range.

IV. Claims 15, 16 and 18 are not unpatentable under 35 U.S.C. 103(a) over Drews 302 in view of Fronek et al and optionally Drews 290 in view of Kemp et al (US 6253815).

The rejection is respectfully traversed for the reasons set forth above and for the following additional reasons. The Kemp reference, as the Examiner noted in a previous office action in the parent application, does not teach projections lying within the prescribed and claimed range of inclinations. Indeed, Kemp teaches, as the Examiner noted, a projection having substantially a ninety-degree angle between projection sides. Moreover, the Kemp projections have a height falling outside of the height of the projections claimed in the application. Given that Kemp directly teaches away from the claimed invention, it is incongruous to hold that a modification of Kemp toward the claimed invention would be obvious. Nothing in Kemp or Ohsawa provides instruction to their combination and modification. The invention teaches a low projection height (not found in Kemp) that gives a surface a fine texture while the projection of the invention is specifically recited to fall within a range of inclinations that will effectively eliminate fluid and dirt from the surface. Such a

capability is not found in either Kemp or Ohsawa. For the aforesaid reasons, dependent claim 15 (from claim 1), independent claim 15, and dependent claim 18 are considered patentable over the cited art. Applicants claim in claim 1 and 16 and, by incorporation, their dependent claims, a specific projection structure and size. No cited art teaches such structure in a mold.

As to claim 15, no reference teaches lettering. The Examiner considers the Kemp reference to suggest lettering merely because Kemp suggests structure that visually differentiates a surface. Applicants note that it is the structure of claim 15 in combination with claim 1 that determines the patentability of claim 15. Kemp does not suggest lettering achieved by undercut projection structure set forth in claim 1. For this reason, claim 15 is considered patentably distinct as well.

V. Claim 17 is not unpatentable under 35 U.S.C. 103(a) over Drews 302 in view of Fronek et al and optionally Drews 290 in further view of Japan 219(JP 6-40219) or Baker (US 5603796).

Claim 17 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Drews 302 in view of Fronek et al and optionally Drews 290 as applied above and further in view of Japan 219 (JP 6-40219) or Baker (US 5,603,796). This rejection is respectfully traversed for the reasons set forth above and for the following additional reasons. No teaching in Japan 219 or Baker is directed at the use of tape in the steps of claim 17 in the process of making a tire having undercut projections configured as claimed. The Examiner has pointed to no teaching from Drews, Fronek, Japan 219, or Baker that remotely suggest utilizing tape having projections in the method claimed. Neither Japan 219 nor Baker relates to the use of tape in such a procedure. It is therefore an unsupported and improper conclusion that forms the basis for the rejection.

VI. Claims 1-16 and 18 are not unpatentable under 35 U.S.C. 103(a) over Ohsawa (US2001/0032691) in view of at least one of Lobert et al (US 4750693), Drews 302 and Drews 290 and optionally in view of Japan '135 (JP 11-59135).

This rejection is respectfully traversed for the reasons set forth above in regard to the Drews reference and for the following additional reasons. Drews 290 adds nothing to the Drews 302 reference and is, therefore, deficient for the reasons set forth previously in regard to Drews 302. Neither teaches a projection having the limitations in independent claims 1 and 16 and claims dependent therefrom. The Japan '135 and Lobert references do not teach projections that fall within the undercut construction and angle range of the claimed

invention. Japan '135 projections have parallel sides. See FIG. protrusions 17. Lobert teaches a sawtooth configuration for drag reduction in airborne, waterborne and space vehicles. The projections of Lobert are for entirely different purposes and do not fall within the range of projection heights defined in the claims.

Ohsawa discloses an angle alpha between a long side A of a projection and a short side B that is substantially ninety degrees. The Examiner, in the First Office Action to parent application, 10/024,869, dated 11/19/2003, states on page 2 that: "Ohsawa does not specifically recite defining an angle alpha of 5-60 degrees". The specific teachings of Ohsawa are, therefore, deficient in meeting the claim limitations. Nor is there the suggestion that the Examiner is proposing as properly found in Ohsawa. Applicants do not dispute that Ohsawa shows asymmetrical projections but, rather than rendering the invention obvious, the fact that the asymmetrical projections of Ohsawa are not undercut and lie outside the claimed parameters of the invention is strong evidence of non-obviousness. Clearly, from Ohsawa, an asymmetrical cross section may have a non-undercut configuration and, therefore, an angle outside of the claimed range. The Examiner is using Ohsawa for a suggestion that the disclosure itself does not teach. The fact that the preferred embodiment of Ohsawa does not meet the claim limitations of the application suggests that the Examiner's interpretation of Ohsawa is not properly founded.

Moreover, as the Examiner notes, Ohsawa never teaches or suggests projections having undercuts. Therefore, logically, Ohsawa would not be instructive to one skilled in the art on the configuration of undercut projections for the multi-purposes of the invention and, in fact, teaches away from the invention. It is not clear how Ohsawa can instruct one in the art to use its non-undercut projection configuration in applications for dirt and water repellence when the configuration and purpose of Ohsawa projections are decidedly different from the invention.

Drews does not, contrary to the Examiner's contention, teach use of projections within the range of apex heights specified. The Examiner is attempting to stretch the vague and ambiguous language of Drews far beyond its potential for instruction to one in the art. Combining Drews with Ohsawa is not contemplated by either reference.

As to claim 16, Ohsawa does not instruct as to the use of a mold to create the claimed projections. The "suggestion" perceived by the Examiner in the reference is sheer speculation and hindsight. The conclusions of obviousness as to claims 3 and 4 and the limitations therein is also considered by Applicants to be unsupported. As to claim 5, Ohsawa's Fig. 22 does not show neighboring undercut projections in which the neighboring

projections are oriented laterally and define with each other an angle within the specified range. As to claim 6, Ohsawa does not teach undercut projections spaced as recited in claim 6. As to claim 7, there is no teaching in Ohsawa or suggestion as to configuring undercut grooves with curved sides as in claim 7. With regard to claim 8, there is no teaching in Ohsawa as to making an undercut projection angle vary within the specified range. As to claim 9, there is no teaching or suggestion in Ohsawa as to varying the height of an undercut projection within the same rubber component. With regard to claims 10-13, there is no teaching in Ohsawa as to configuring and placement of undercut projections as set forth. As to claim 14, the Ohsawa tire includes rubber sidewalls but there is no teaching on the placement of undercut projections therein as claimed. With regard to claim 15, the placement of the grooves in Ohsawa is in the tread for the purpose of water evacuation. Ohsawa cannot, therefore, be deemed instructive on sidewall lettering or sidewall surface differentiation for lettering purposes. As to claim 18, Ohsawa is deficient in teaching the vulcanization of a tire in a mold having projections that are incorporated into a tape pursuant to claim 16.

It is well settled that for a combination of references to be obvious, there must be some teaching or suggestion in the references that would lead one skilled in the art to make the combination.

To establish *prima facie* obviousness, there 1) must be some suggestion or motivation in the art to modify or combine the references; 2) must be a reasonable expectation of success and 3) the combined references must teach or suggest all the claim limitations. *Bott v. Four Start Corp.*, 218 USPQ 358 (D.Ct, ED Mich 1983)(citing *Stevenson v. ITC*, 204 USPQ 276, 280 (CCPA 179)), "to be relevant, the area or art should be 'where one of ordinary skill in the art would be aware that similar problems exist.'" Thus, to be relevant, the prior art must be in an area where one of ordinary skill in the art would be aware that similar problems exist. The problems that the invention solves are dirt repellence and water repellence in combination with the capability for visible surface differentiation. The Examiner has pointed to no teaching that addresses such multiple and competing problems. Rather, the references are directed to a totally different set of problems, such as reduction of drag in a vehicle. The Examiner's argument that no unexpected results are present invention is unsupported argument and conclusion, and is inconsistent with the position taken by the Examiner in the Advisory Action. As represented therein, the Examiner deems claims 1-18 allowable if amended. Presumably the amended claims would achieve the "unexpected results" that the Examiner considers not present in the claims in the form under appeal. Such a position is illogical, inconsistent, and untenable. One skilled in the art would readily recognize the

attainment by the claimed invention of the objectives found in the specification; objectives that cannot be achieved by any of the cited art singularly or in combination.

As to the differing objectives addressed by the cited art vis-a-vis the claimed invention, authority is well settled. Mere assertion by the Examiner that the references relate generally to a tire does not suffice in establishing a prima facie case of obviousness in their combination. In rejecting claims under 35 USC § 103, the examiner bears the initial burden of presenting a *prima facie* case of obviousness. In re Rijckaert, 9 F.3d 1531, 1532, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993)

The reason, suggestion or motivation to combine [references] may be found explicitly or implicitly: (1) in the prior art itself; (2) in the knowledge of those of ordinary skill in the art that certain references are of special interest or importance in the field; or (3) from the nature of the problem to be solved. Wesley Jessen Corp. v. Coopervision Inc., 63 USPQ2d 1897, 1901 (US Central Ca, 2002) (Ruiz v. A.B. Change Co., 234 F.2d 654, 665 (Fed. Cir. 2000)). In the case at hand, (1) none of the cited art itself refers to or would provide a motive to combine the references; (2) one of ordinary skill in the art would not look to design features meant to address an entirely different set of objectives for instruction in dirt and water repellence in combination with visual surface differentiation; and (4) the nature of the problem solved by the invention is different and unrelated to the problem of drag reduction addressed by the cited art.

One "cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention." Ecolochem, Inc. v. Southern California Edison Co., 227 F.3d 1361, 1371, 56 USPQ2d 1065 (Fed. Cir. 2000) (quoting In re Fine, 837 F.2d 1071, 1075 (Fed. Cir. 1988)). Such hindsight is precisely the sole basis and means for the selective combination of Drews, Fronek, Rethorst, Heinen, Kemp, Japan 219, Baker, Lobert, Japan '135 or Ohsawa art in the manner presented by the Examiner.

Applicants submit that a result that includes simultaneous achievement of reduced hydroplaning , optical and color differentiation, and a reduced dirt in collection channels would not be unexpected when none of the cited art achieves such a result. None of the cited art solves the above set of problems and needs simultaneously in the manner set forth in the claims. In addition, as explained above, the Examiner's position as to the lack of "unexpected results" is inconsistent with the representation that claims 1-18 would be allowable if amended.

Applicants have pointed to specific claimed structure and how that structure contributes to solving the stated problems set forth in the specification. Applicants further

have pointed to the deficiencies in the art toward addressing and solving the stated problems of the invention. The Examiner has denied the existence of unexpected results despite the success of the claimed invention in solving a set of problems unsolved by the prior art. One skilled in the art, upon consideration of the specification's specific stated objectives of the invention, would readily understand the success of the invention in meeting such objectives. In view of the above, reconsideration of the application and allowance of all pending claims is requested.

As the Examiner notes on Page 3 of the Office Action dated December 30, 2005, "Drews 302 does not specifically recite the projections as having a height of .2 to 100 micrometers". Applicants agree as to the deficiency in Drews and would further add that there is no teaching in Drew '302 whatsoever that would teach one skilled in the art to a make a modification of the Drews flutes to fall within such range. In fact, the Drew reference as to the term "microscopic" without definition makes any reliance on the dimensional teachings of Drews speculation. Fronek teaches a projection of totally non-analogous construction for the sole purpose of reducing drag. No teaching is in Fronek that would direct one skilled in the art toward a combination with Drew '302.

The Examiner has relied on MPEP 2144 page 2100-140 Rev. 3 August 2005. However, the section does not state that a *combination and modification* of references that are directed to problems dissimilar to the invention problems, absent any instruction or suggestion from the references themselves, can properly be deemed to render the invention to be obvious. The Examiner's position runs counter to well established authority that there must be a teaching in combined art to support a position that their combination would be obvious to one skilled in the art. Hindsight is not a substitute for the requirement that there be such a teaching. There is no way Drew '302 projections can satisfy the limitations of the independent claims 1, 16, and 17 without a modification. No such modification is taught or suggested in any of the cited art.

As to the Examiner's stated position regarding Applicants' purported failure to prove Fronek and Drew '302 non-enabling, no such requirement exists for patentability. Applicants' position is that neither the Fronek and Drews '302 teach the claimed invention for the reasons set forth above; and that there is no basis other than unsupported hindsight for the modification and combination proposed by the Examiner to be obvious to one skilled in the art. As to the terms "size" and "microscopic" the Examiner's position that such terms encompass any projection size is untenable. Applicants disagree that the use of the term

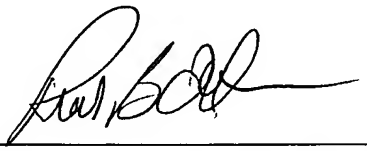
"microscopic" in Drew '302 is sufficiently definite to instruct one of skill in the art to make a projection within the claimed range.

As to the Examiner's stated position regarding stated objectives, there can be no dispute that Fronek and Drew '302 are both directed to the sole stated objective of drag reduction. "Microscopic" flutes are taught by Drew '302 to accomplish such an objective. Applicants' have presented projections that fall within a prescribed range not taught in Drew '302 for different objectives; namely enhanced self-cleaning; improved optical appearance; improved water repellence that reduces the risk of aquaplaning; and allow for color differentiation water channeling. The invention provides a range of projection heights to achieve these stated objectives. One of skill in the art would not know from Drew '302 depiction of its flutes as to how or why to make projections within the claimed range. No objective evidence is required to note the deficiencies of the cited art in teaching claimed limitations. Nor is there any basis for concluding modification to cited references necessary to meet claimed limitations must be presumed obvious to one skilled in the art absent objective evidence, especially when none of the cited art suggest such modification and combination.

The deficiencies in the prior art in meeting claimed limitations and why such limitations provide an advantage in meeting stated objectives of the invention are set forth in the specification. The Examiner bears the burden of showing a combination of references directed to different purposes and objectives would be obvious to one skilled in the art. That burden has not been met. The Examiner has acknowledged that Drew '302 does not teach the claimed range of heights for the Applicants' projections and has not identified any teaching or suggestion in the reference that would lead one skilled in the art toward the claimed structure. Applicants reiterate that Drew '302 fails to meet the limitations of the claims in that it fails to teach a projection in which any plane tangent to the first side (2) of the projection cutting the radially outer surface (S1) at an acute angle. Such a limitation results in a non-concave side (2) that, contrary to Drew '302, will not form an undesired water conveying channel at the upper portion of each projection. The differences between the Drew '302 projections and the claimed invention is therefore and results in an achievement of the stated objectives of the invention not attainable by the Drew '302 configuration.

CONCLUSION

Claims 1-18 (independent claims 1, 16, and 17 and dependent claims thereon) combine a novel shaped first projection side with an undercut formed by intersecting first and second sides that extends beneath an apex (P). Specifically, the independent claims require a first side (2) in which, in more than 75% of the projections, *any plane* (emphasis added) tangent to the first side (2) of the projection cuts the radially outer surface (S1) at an acute angle and the second side (2') forming with the outer surface (S1) an undercut extending beneath the apex (P). The Examiner's rationale that a (convex) configuration of second side (2') in combination with a projection undercut formed by sides (2) and (2') is patentable over the cited art, Applicants submit, is equally applicable to the claims in their existing form now on appeal. It is incongruous, inconsistent, and untenable to hold that a (convex) configuration of a second side (2') in combination with a projection undercut formed by sides (2) and (2') that extends below apex P would not be obvious in view of the cited art but that a uniquely configured first side (2) (i.e. a projection in which any plane tangent to the first side (2) cuts the radially outer surface (S1) at an acute angle) in combination with a projection undercut formed by sides (2) and (2') that extends below apex P is obvious over the cited art. Applicants submit that the same rationale must logically lead to a conclusion of patentability in both cases. Applicants accordingly requests a reversal of the final rejection of claims 1-18 and an indication of their allowance.



Richard B. O'Planick, Reg. No. 29,096
Attorney for Appellants

The Goodyear Tire & Rubber Company
Intellectual Property Law Department 823
1144 East Market Street
Akron, OH 44316-0001
Phone: 330-796-5240
Fax: 330-796-9018

CLAIMS APPENDIX

CLAIMS

1. A tire having a plurality of radially outer rubber components, the components defining a radially outer surface (S1) of the tire and being exposed to fluids having a relative displacement with respect to the rotating tire, the tire comprising at least one radially outer component having projections, the projections being defined by first sides (2) and second sides (2') of unequal length, the first sides (2) having the greater length, delimiting therebetween an angle α ranging from 5° to 60° and forming at their intersection an apex (P), which protrudes by a height (h) from the radially outer surface (S1) from which said first and second sides originate, the second side (2') forming with the outer surface (S1) an undercut extending beneath the apex (P), and the height (h) ranging from 0.2 to 100 micrometers and in more than 75% of the projections, any plane tangent to the first side (2) of the projection cutting the radially outer surface (S1) at an acute angle.

2. The tire according to claim 1, wherein said acute angle formed by any plane tangent to the first side (2) and the outer surface (S1) is between 15° and 55°.

3. The tire according to claim 1, wherein said projections are delimited in the region of apexes (P) by a curved line.

4. The tire according to claim 3, wherein said plane cutting the radially outer surface at an acute angle is tangent to the first side (2) of the projection at a height not exceeding 75% of the total height of the projection.

5. The tire according to claim 1, wherein at least 2 non-parallel neighboring projections are oriented laterally such that, their longitudinal central axes projected on the radially outer surface (S1) define with each other a non-zero angle ß ranging from –15° to +15°.

6. The tire according to claim 1, wherein said projections are placed on the radially outer component at a distance (d) ranging from 0 to 100 micrometers from each other.

7. The tire according to claim 1, wherein said sides (2) and (2') are slightly curved.

8. The tire according to claim 1, wherein said angle α varies within the same rubber component.

9. The tire according to claim 1, wherein said height (h) varies within the same rubber component.

10. The tire according to claim 1, wherein said at least one radially outer rubber component is a tread.

11. The tire according to claim 10, wherein said projections are provided on the bottom of at least one groove provided in the tread.

12. The tire according to claim 10, wherein said projections are provided on at least one sidewall of at least one groove of the tread.

13. The tire according to claim 12, wherein said at least one groove is a circumferentially extending groove.

14. The tire according to claim 1, wherein said at least one or at least a further radially outer rubber component is the sidewall of the tire.

15. The tire according to claim 1, wherein said at least one radially outer rubber component is lettering of the tire.

16. A mold for manufacturing a rubber tire, the mold comprising surfaces to form a tire having at least one radially outer component having projections, the projections being defined by first sides (2) and second sides (2') of unequal length, the first sides (2) having the greater length, delimiting therebetween an angle α ranging from 5° to 60° and forming at their intersection an apex (P), which protrudes by a height (h) from the radially outer surface (S1) from which said first and second sides originate, the second side (2') forming with the

outer surface (S1) an undercut extending beneath the apex (P), and the height (h) ranges from 1 to 100 micrometers; and in more than 75% of the projections, any plane tangent to the first side (2) of the projection cuts the radially outer surface (S1) at an acute angle.

17. Process of making a rubber tire comprising the steps of:

a) providing a tape with projections protruding from the surface of the tape, the projections being defined by first sides (2) and second sides (2') of unequal length, the first sides (2) having the greater length, delimiting therebetween an angle α ranging from 5° to 60° and forming at their intersection an apex (P), which protrudes by a height (h) from a radially outer surface (S1) of the tape from which said first and second sides originate, the second side (2') forming with the outer surface (S1) an undercut extending beneath the apex (P), and whereby the height (h) ranges from 0.2 to 100 micrometers; and in more than 75% of the projections, any plane tangent to the first side (2) of the projection cuts the radially outer surface of the tape at an acute angle;

b) adhering the tape to a vulcanized radially outer rubber component of a rubber tire.

18. Process of making a rubber tire comprising the step of vulcanizing the tire in a mold as defined in claim 16.

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

None.

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APPELLANTS' BRIEF AND APPENDIX

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to mail Stop Appeal Brief-Patents, United States Patent and Trademark Office, P. O. Box 1450, Alexandria, VA 22313-1450, on the 10th day of July, 2006.

Richard B. O'Planick, Reg. No. 29,096

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